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OF *GOMPHUS LENTULUS* NEEDHAM (ODONATA).

THE IDENTITY OF THREE GEOGRAPHICALLY
MISPLACED SPECIES OF ODONATA

By
LEONORA K. GLOYD



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GOMPHUS SUBAPICALIS WILLIAMSON, A SYNONYM
OF *GOMPHUS LENTULUS* NEEDHAM (ODONATA).

By

LEONORA K. GLOYD*

For a number of years the identity of *Gomphus lentulus* Needham (1902) has been questionable because the solitary type male from five miles northeast of Flora, Clay Co., Illinois, was not figured, was supposedly in poor condition when described, and then became lost (Williamson, 1914, footnote, p. 51-52). A neotype was designated by Muttkowski (Muttkowski and Whedon, 1915, p. 99-100) but this male, in the Brooklyn Museum, which he had previously figured and commented upon (1911, p. 37, pl. 14) was without locality data, was larger, differed in several details of coloration, and had not been compared with the type. When the promised figures (Needham, 1902) of the type finally appeared (Needham and Heywood, 1929, p. 113) they differed slightly from those of the neotype and a doubt regarding the species still persisted.

Fortunately the type of *lentulus* was found in the collection of the Illinois State Natural History Survey (Frison, 1927, p. 144) and is in better condition than one might expect from reports in the literature. The second abdominal segment, however, is badly injured and the posterior hamules missing, but the remainder of the copulatory organs of this segment are mounted separately on a pin.

The discovery of *Gomphus subapicalis* Williamson in Indiana (Montgomery, 1934 and 1937) and the similarity of the figures of *subapicalis* and *lentulus* led to a study of the types of these species. A male from Vigo Co., Indiana, collected July 4, 1929, by B. Elwood Montgomery, field number 2912 (now in the Williamson collection, Museum of

*Honorary Curator of Insects, Chicago Academy of Sciences.

Zoology, University of Michigan) was compared with the type of *lentulus* Needham, with the type and paratype of *subapicalis* Williamson from Bay City and Williams Lake, Texas (Williamson collection), and with a male (Southern Methodist University collection) from Dallas, Texas, taken at Denton or Caddo Lake in the spring of 1938. In all these specimens the color pattern is essentially the same. In the type of *lentulus* the ante- and postclypeus are discolored and brownish but obviously originally pale (yellowish green ?) as in the other specimens; the thoracic pattern is obscured because the pigmented layer adhered to the shrunken muscular tissue in drying instead of remaining next to the exoskeleton. In the type of *lentulus* and in the male from Dallas, the mesal apical point of the superior abdominal appendage is somewhat blunt, and shorter than in the type of *subapicalis*, but this difference is no greater than is to be expected in any series of a gomphine species. The accessory genitalia of the second abdominal segment are the same in all. Therefore, in the opinion of the writer, *Gomphus subapicalis* Williamson is a synonym of *Gomphus lentulus* Needham (1902).

The differences in the published figures of the abdominal appendages are apparently due to an exaggeration of certain parts in drawing, to the angle viewed, and to the position of the inferior appendage. In Williamson's drawings (1914, pl. 4) of the type of *subapicalis*, figure 1 shows a slightly oblique anterodorsal view and figure 3 has the superior appendage drawn at least two millimeters too long. Either drawing would indicate that the appendages are of approximately equal length, whereas the inferior is distinctly longer. The figures in *A Handbook of the Dragonflies of North America* (Needham and Heywood, 1929, p. 113) for *subapicalis* are obviously not of this species. In Muttkowski's drawing of *lentulus* (1911, pl. 4, fig. 14) the inferior appendage appears proportionately longer than in other figures because it is extended beyond a normal position (as often happens in bristled specimens), indicated by the distance of its ventral enlargement from the apex of segment 10. The drawings for *lentulus* (type ?) (Needham and Heywood, 1929, p. 113) show the relative length of superior and inferior appendages rather well but, unfortunately, detail had to be sacrificed because of the necessity for greatly reduced figures in such a book.

The known distribution of *Gomphus lentulus* Needham, based on published records, is as follows: Illinois (Needham, 1902, p. 276), Indiana (Montgomery, 1934, p. 216; 1937, p. 208), Oklahoma (Bird, 1932, p. 52), and Texas (Williamson, 1914, p. 54). With the exception of the one from Illinois, all are listed under *subapicalis*.

The writer is grateful to Dr. Theodore H. Frison, Chief of the Illinois State Natural History Survey Division, and to Prof. F. M. Gaige, Director of the Museum of Zoology, University of Michigan, for the privilege of examining type specimens in the collections of their respective institutions, and to Miss Alice Ferguson of Dallas, Texas, for sending the specimen of *Gomphus lentulus* from the collection of Southern Methodist University.

LITERATURE CITED

BIRD, R. D.

- 1932 Dragonflies of Oklahoma. Publ. Univ. Oklahoma, Biol. Surv., vol. 4, p. 51-57.

FRISON, THEODORE H.

- 1927 A list of the insect types in the collections of the Illinois State Natural History Survey and the University of Illinois. Bull. Illinois State Nat. Hist. Surv., Urbana, vol. 16, art. 4, p. 137-309. Odonata, p. 144.

MONTGOMERY, B. ELWOOD

- 1934 Records of Indiana dragonflies - VII. 1932-1933. Proc. Indiana Acad. Sci., vol. 43, p. 211-217.
1937 Records of Indiana dragonflies, IX, 1935-1936. *Ibid.*, vol. 46, p. 203-210.

MUTTKOWSKI, RICHARD A.

- 1911 New records of Wisconsin dragonflies (Odonata). II. Bull. Wisconsin Nat. Hist. Soc., vol. 9, p. 28-41, pl. 4.

MUTTKOWSKI, R. A. AND A. D. WHEDON

- 1915 On *Gomphus cornutus* Tough (Odonata). Bull. Wisconsin Nat. Hist. Soc., vol. 13, p. 88-101, fig. 1-7.

NEEDHAM, JAMES G.

- 1902 Three new gomphines. Canad. Ent., vol. 34, p. 275-278.

NEEDHAM, JAMES G. AND HORTENSE BUTLER HEYWOOD

- 1929 A handbook of the dragonflies of North America. Springfield, Illinois: Charles C. Thomas. viii + 378 p., with text figures.

WILLIAMSON, E. B.

- 1914 *Gomphus pallidus* and two new related species (Odonata). Ent. News, vol. 25, p. 49-58, pl. 4-5.

THE IDENTITY OF THREE GEOGRAPHICALLY
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Erroneous geographic data for type specimens are sometimes responsible for a species becoming "lost." For many years the localities given for *Argia concinna* (Rambur), *Argia kurilis* Hagen, and *Gomphus kurilis* Hagen, all known only from the type material, have been doubted but no one has confirmed or disproved them. All three species were taken on long voyages of early explorers and in subsequent handling could very easily have been mislabeled. A direct comparison of correctly labeled material with the types of these species has been made and the following conclusions reached.

Argia concinna (Rambur)

Agrion concinnum Rambur, 1842, Ins. Nev., p. 254. Type locality, "Du Cap." (♂ ♀ Selys coll., Musée Royal d'Histoire Naturelle de Belgique, Bruxelles, Belgium.)

The identity of this species has been a source of bewilderment because the type locality was interpreted to mean the Cape of Good Hope. *Argia concinna* did not seem to belong to the African fauna and yet the modification of the apical portion of the tenth abdominal segment and the appendages of the male were so unique as to raise doubt of its being placed correctly in the American genus *Argia*.

Specimens have been examined in the United States National Museum from Dominica and Guadeloupe, others from the American Museum of Natural History (referred to me by Dr. J. G. Needham) from Grenada, and more recently a large series from Dominica in the Williamson collection, University of Michigan, which agree perfectly with the description by Rambur (1842) and Selys (1865, p. 391-392), and with the figures of the types by Hagen (Hagen and Calvert, 1902, pl. 2, fig. 16, 16a) and by Ris (1921, p. 438, fig. 77). In 1937, Dr. Erich Schmidt of Bonn, Germany, kindly compared two male specimens from Dominica (Williamson collection) with the type male in the Selys collection at Brussels. Although the type is now incomplete (head, prothorax and abdominal segments 8-10 missing), he expressed the opinion that these specimens are conspecific. In view of the fact that several South American species were once thought to be from Africa, it is not surprising to find that *Argia concinna* really belongs to the fauna of the Lesser Antilles.

Argia kurilis Hagen

Argia kurilis Hagen, in Selys, 1865, Synop. Agr., p. 400. Type locality, "Iles Kuriles." (♀ *ex.* Imperial Museum of St. Petersburg, now in Hagen coll., Museum of Comparative Zoology, Cambridge, Mass.)

The single female specimen, bearing the label "Kurilische Id.," was collected by some early Russian explorers (Hagen, 1861, p. vi) who visited the Kurile Islands, the coast of Alaska, and as far south, at least, as San Francisco, California. The type agrees in essential details (measurements, color pattern, shape of the mesostigmal lamina) with California specimens of *Argia vivida* Hagen. Unless other specimens are eventually found in the Kurile Islands, I believe the locality for *A. kurilis* should be considered an error. *Argia kurilis* (♀) and *Argia vivida* (♂) were both described in the same paper (Hagen, in Selys, 1865, p. 400, and p. 406). Although the former has page priority, preference is here given to *vivida*, which is well established in the literature, as the valid name for the species.

Gomphus kurilis Hagen

Gomphus kurilis Hagen, in Selys, 1857, Mon. Gomph., p. 132-133. Type locality, "Iles Kuriles." (♂ *ex.* Imperial Museum of St. Petersburg, now in Hagen coll., Museum of Comparative Zoology.)

When discussing the identity of *Argia kurilis* with Mr. Nathan Banks at the Museum of Comparative Zoology, he called my attention to the type of *Gomphus kurilis* and to a male from Reno, Nevada, collected by Morrison in 1879, which in his opinion was the same species. A careful comparison of the two specimens showed that they are undoubtedly conspecific. Later the Nevada male was compared with paratypes of *Gomphus donneri* Kennedy (1917, p. 562-569) in the Williamson collection with which it agreed in all essential details. It is extremely unfortunate that the name *kurilis* Hagen (1857) must, according to the International Rules of Zoological Nomenclature, replace the more appropriate name of *donneri* Kennedy (1917). The known range of *donneri* is limited to the vicinity of Donner Lake, Nevada County, California. The single male of *kurilis* was originally a part of the collection of the early Russian explorers and could possibly have been given to them by friends interested in natural history when in port at San Francisco. The evidence, then, indicates that the type male of *kurilis* came from California, or Nevada, and not from the Kurile Islands.

LITERATURE CITED

HAGEN, HERMANN

- 1861 Synopsis of the Neuroptera of North America. Smithsonian Misc. Coll., vol. 4 (1862), xx + 347 p. Washington.

HAGEN, HERMANN A. AND PHILIP P. CALVERT

- 1902 Illustrations of Odonata: Argia. By Hermann A. Hagen. With a list and bibliography of the species. By Philip P. Calvert. Bull. Mus. Comp. Zool., vol. 29, p. 103-120, pl. 1-2.

KENNEDY, CLARENCE HAMILTON

- 1917 Notes on the life history and ecology of the dragonflies (Odonata) of Central California and Nevada. Proc. U. S. Nat. Mus., vol. 52, p. 483-635, fig. 1-404.

RAMBUR, M. P.

- 1842 Histoire Naturelle des Insectes. Neuropteres. Paris: Librairie Encyclopedique de Roret. xviii + 534 p., 12 pl.

RIS, F.

- 1921 The Odonata or dragonflies of South Africa. Ann. S. African Mus., vol. 18, pt. 3, p. 245-252, pl. 5-12, text fig. 1-77.

SELYS-LONGCHAMPS, BARON EDMOND DE (WITH H. A. HAGEN)

- 1857 Monographie des Gomphines. Separate, viii + 460 p., 23 pl. 1858, Mem. Soc. Sci. Liege, vol. 11, p. 257-720, pl. 1-23.

SELYS-LONGCHAMPS, BARON EDMOND DE

- 1865 Synopsis des Agrionines, 5me légion: Agrion. Bull. l'Acad. royale de Belgique, ser. 2, tome 20, no. 8, p. 375-417. Separate, p. 3-45.